

BIOHACK NOTES



# BODY FLUIDS AND CIRCULATION

- BASED ON ACTIVE RECALL AND SPACED REPETITION
- TARGET 360/360 IN NEET BIOLOGY & 100/100 IN BOARDS!



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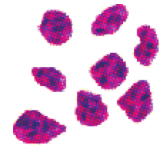
## • BLOOD

1. Blood consist of (2) -
2. Plasma is \_\_\_\_\_ coloured.
3. Plasma constitutes nearly \_\_\_\_\_% of blood.
4. Proteins constitute \_\_\_-\_\_\_ percent of plasma.
5. Major proteins are (3) -
6. Fibrinogen is used in - (NEET)
7. Globulins fxn - (NEET)
8. Albumins fxn - (NEET)
9. Plasma without clotting factor is called \_\_\_\_\_ (NEET)
10. Formed elements constitute \_\_\_\_\_% of blood.
11. RBC count in a healthy man is -
12. RBC are formed in -
13. RBC are devoid of \_\_\_\_\_ in most mammals and are \_\_\_\_\_ in shape. (NEET)
14. \_\_\_\_\_ grams of haemoglobin is present in every 100 ml of blood.
15. Average lifespan of RBC is -
16. RBC are destroyed in -
17. Leucocytes are white in colour. T/F
18. WBC count is -
19. Leucocyte are short lived. T/F
20. Ex of granulocytes are - (3)
21. Ex of agranulocytes are - (2)
22. Neutrophils are \_\_\_\_\_% of total WBC. (NEET)
23. Eosinophils % is -
24. Basophils % is -
25. Lymphocyte % is - (NEET)
26. Monocyte % is -
27. \_\_\_\_\_ and \_\_\_\_\_ are phagocytic cells which destroy foreign organisms entering the body. (NEET)
28. Basophils secrete (3) - (NEET)
29. \_\_\_\_\_ are involved in inflammatory reactions. (NEET)
30. \_\_\_\_\_ are associated with allergic reactions. (NEET)
31. \_\_\_\_\_ resist infections. (NEET)
32. Lymphocytes types are - (2) (NEET)
33. Platelets are also called \_\_\_\_\_ (NEET)

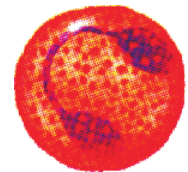
DigaQ. 1



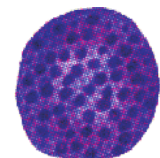
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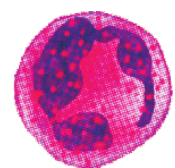
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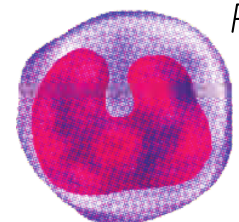
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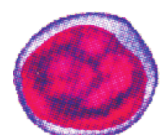
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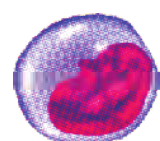
E



F



G



H



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34. Platelets are produced from \_\_\_\_\_

35. Normal platelet count is - (NEET)

### • BLOOD GROUPS

36. Antibody is present on RBC. T/F

37. Universal Donor is \_\_\_\_\_

38. Universal Recipient is \_\_\_\_\_

39. Donor group of B blood group is -

40. The Rh antigen got its name from \_\_\_\_\_

41. Rh antigen is present in \_\_\_% of humans.

42. Erythroblastosis foetalis condition can develop in the first child. T/F

43. Erythroblastosis foetalis condition develop when mother is Rh +ve/-ve and child is Rh +ve/-ve.

44. Erythroblastosis foetalis cause \_\_\_\_\_ and \_\_\_\_\_

45. It can be avoided by administering \_\_\_\_\_ in the child/mother after delivery of the first/second child.

### • COAGULATION OF BLOOD AND LYMPH

46. Thrombin is formed from \_\_\_\_\_ with the help of enzyme \_\_\_\_\_

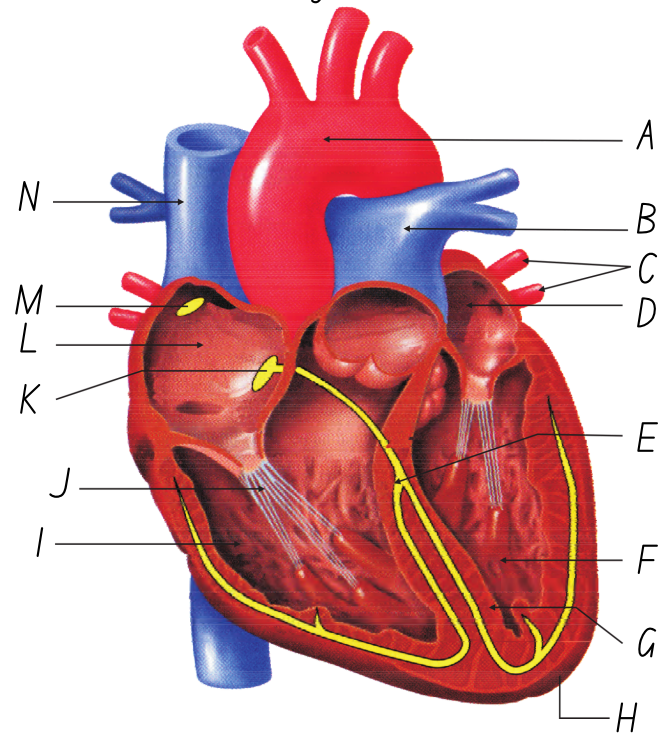
47. Fibrins are formed from \_\_\_\_\_ with the help of enzyme \_\_\_\_\_

48. \_\_\_\_\_ act as a cofactor during the clotting process.

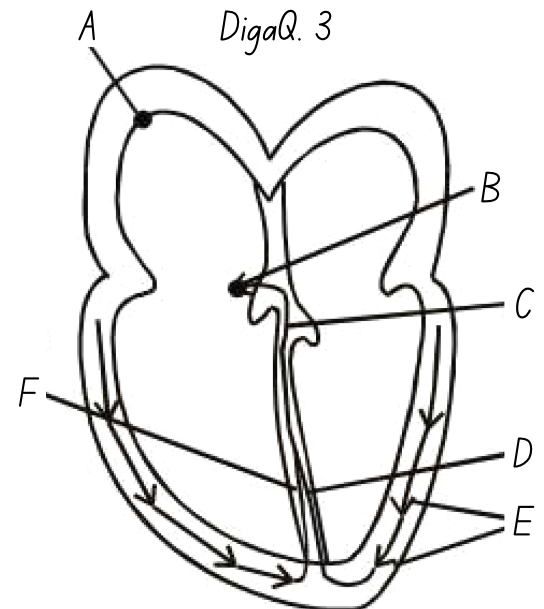
49. Lymph is a colourless fluid. T/F

50. Fat is absorbed through \_\_\_\_\_

DigaQ. 2



DigaQ. 3



### • CIRCULATORY PATHWAYS

51. Open circulatory system is present in - (2)

52. Annelids have an open circulatory system. T/F

53. Crocodiles have \_\_\_ chambered heart

54. In fish, the heart pumps oxygenated blood. T/F

### • HUMAN CIRCULATORY SYSTEM

55. Heart is derived from endo/meso/ectoderm.

56. Heart is protected from single/double walled bag called \_\_\_\_\_

57. Pericardium enclose a fluid called \_\_\_\_\_

58. Interatrial septum is thin/thick.

59. Atrio-ventricular septum is made of thick/thin \_\_\_\_\_ tissue.



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60. Right chambers are divided by tri/bicuspid valves. (NEET)

61. \_\_\_\_\_ valve is also called \_\_\_\_\_ (NEET)

62. Semilunar valves are present between - (NEET)

63. A specialised cardiac musculature called \_\_\_\_\_ is also distributed in the heart.

64. Nodal tissue present in right upper corner of right atrium is -

65. SAN full form is -

66. AVN is present at \_\_\_\_\_ corner of left/right atrium

67. The branches which give rise to minute fibres throughout the ventricular musculature are called \_\_\_\_\_

68. \_\_\_\_\_ can generate maximum no of action potentials in nodal tissue.

69. SAN action potential generation rate is -

### • CARDIAC CYCLE

70. Atrial systole causes an increase in blood flow into the ventricles by \_\_\_\_%.

71. Time period of a cardiac cycle is \_\_\_\_\_ sec.

72. The two atria do not contract simultaneously. T/F

73. Duration of ventricular diastole is -

74. Duration of atrial diastole is -

75. Duration of joint diastole is -

76. Each ventricle pumps out \_\_\_\_\_ ml of blood which is called \_\_\_\_\_

77. Cardiac output is the total volume of blood pumped out by the heart per min. T/F

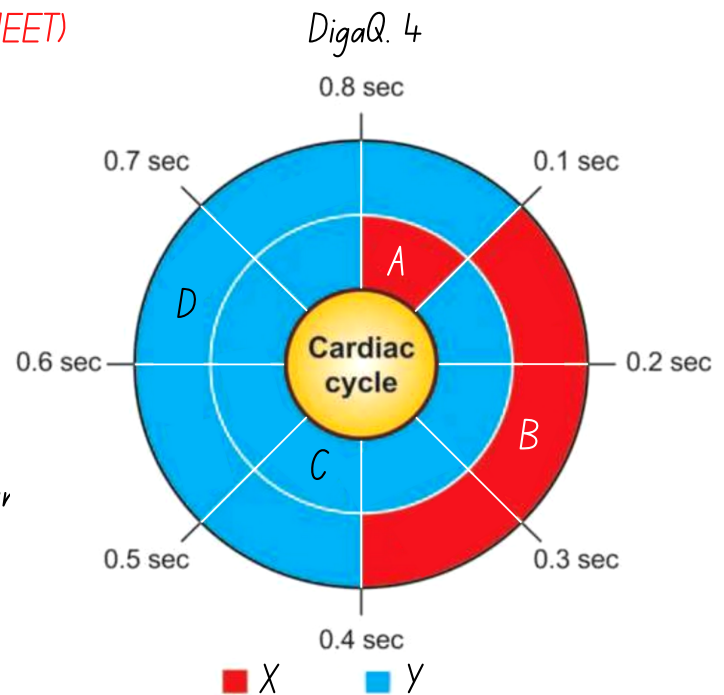
78. Heart rate of athletes is greater than normal individuals in resting state. T/F

79. Normal value of cardiac output is -

80. Stroke volume is also called \_\_\_\_\_

81. First heart sound is \_\_\_\_\_ due to -

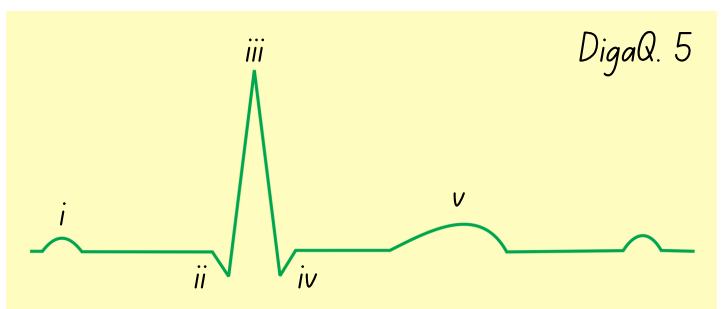
82. Second heart sound is \_\_\_\_\_ due to -



### • ECG & DOUBLE CIRCULATION

83. The machine is called electrocardiogram which is used to obtain electrocardiograph. T/F

84. The three leads are connected at \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_





85. Why is the 3rd lead connected to the left ankle ? Why not the right ankle ?

86. For detailed evaluation, \_\_\_\_\_ no of leads are attached to \_\_\_\_\_ region.

87. P wave represents \_\_\_\_\_ of the atria. (NEET)

88. QRS complex represent -

89. T wave represent - (NEET)

90. \_\_\_\_\_ wave marks the end of systole. (NEET)

91. When does atrial repolarization occur ?

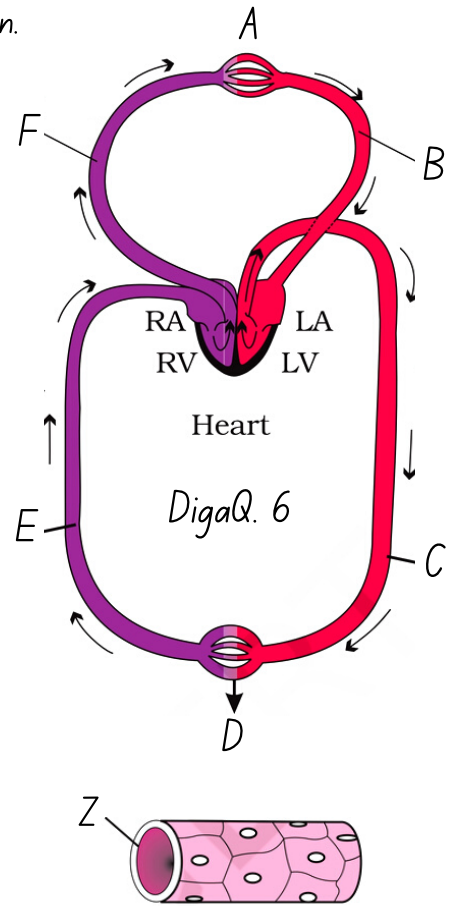
92. The 3 layers of artery and veins are -

93. The 3 layers respectively are made of -

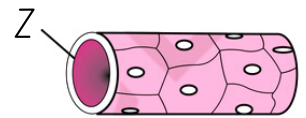
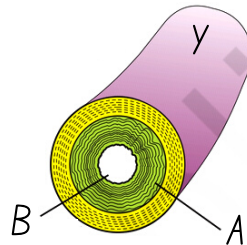
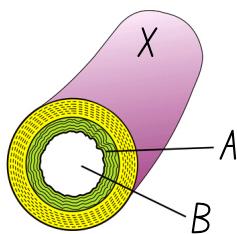
94. \_\_\_\_\_ is comparatively thin in veins.

95. The two types of circulation in our body is (2) -

96. Hepatic portal vein carries blood from \_\_\_\_\_ to \_\_\_\_\_ (NEET)



DigaQ. 7



## • REGULATION & DISORDERS OF CIRCULATORY SYSTEM

97. Human heart is neurogenic/myogenic.

98. \_\_\_\_\_ modulate moderate cardiac function through ANS.

99. Speed of conduction of action potential is decreased by sympathetic nervous system. (NEET)

100. High blood pressure leads to \_\_\_\_\_ and also affects vital organs like \_\_\_\_\_ and \_\_\_\_\_

101. BP equal or greater than \_\_\_\_\_ shows hypertension.

102. Atherosclerosis and arteriosclerosis are same terms. T/F

103. Atherosclerosis is a subtype of arteriosclerosis. T/F

104. Atherosclerosis also called \_\_\_\_\_ is cause by deposition of (4) -

105. Angina pectoris occurs when -

106. What is heart failure ?

107. Congestion of \_\_\_\_\_ is one of the main symptoms of heart failure.

108. What happens in cardiac arrest ?

109. What happens in heart attack ?



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# BODY FLUIDS AND CIRCULATION



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# ANSWERS

## • BLOOD

1. Plasma and formed elements
2. Straw
3. 55
4. 6-8
5. Fibrinogen, globulins and albumins
6. Coagulation of blood
7. Involved in defense mechanism
8. Help in osmotic balance
9. Serum
10. 45
11. 5-5.5 millions of RBC per  $\text{mm}^{-3}$
12. Red bone marrow
13. nucleus, biconcave
14. 12-16
15. 120 days
16. Spleen
17. F, colourless
18. 6000-8000 per  $\text{mm}^{-3}$
19. T
20. Neutrophils, eosinophils and basophils
21. lymphocytes and monocytes
22. 60-65
23. 2-3
24. 0.5-1
25. 20-25
26. 6-8
27. Neutrophils and monocytes
28. histamine, serotonin, heparin
29. Basophils
30. Eosinophils
31. Eosinophils
32. B and T
33. Thrombocytes
34. Megakaryocytes
35. 1,50,000-3,50,000 platelets  $\text{mm}^{-3}$

## Blood Groups

36. F
37. O
38. AB
39. B, O
40. Rhesus monkey
41. 80 %
42. F
43. Mother: -ve, child: +ve
44. Severe anaemia and jaundice
45. anti-Rh antibodies, first

Blood Group	Antigens on RBCs	Antibodies in Plasma	Donor's Group
A	A	anti-B	A, O
B	B	anti-A	B, O
AB	A, B	nil	AB, A, B, O
O	nil	anti-A, B	O

## Coagulation of Blood, and Lymph

46. Prothrombin, thrombokinase
47. Fibrinogen, thrombin
48. Ca
49. T
50. Lacteals of lymph

## • CIRCULATORY PATHWAYS

51. Arthropods and molluscs
52. F
53. 4
54. F, deoxygenated

## Human Circulatory System

55. Mesoderm
56. Double layer pericardium
57. Pericardial fluid
58. Thin
59. Thick fibrous



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60. Tricuspid
61. Bicuspid, Mitral (trick - bicuspid have bi names)
62. Ventricle and pulmonary artery and ventricle and aorta
63. Nodal tissue
64. SAN
65. Sino-atrial node
66. Lower left corner of right atrium
67. Purkinje fibers
68. SAN
69. 70-75 per min

### Cardiac Cycle

70. 30
71. 0.8
72. F
73. 0.5 sec
74. 0.7 sec
75. 0.4 sec
76. 70 ml, stroke volume
77. F, volume pumped by a ventricle
78. F
79. 5000 ml
80. Beat volume (refer summary of NCERT)
81. Lub, due to closure of bicuspid and tricuspid valves
82. Dubb, due to closure of semilunar valves

### • ECG & DOUBLE CIRCULATION

83. F, vice versa is true
84. One to each wrist and one to the left ankle
85. Because our heart is tilted towards left, so putting lead on left ankle will help measure things more accurately
86. 12, chest
87. Depolarisation
88. Depolarization of ventricle
89. Repolarisation of ventricle
90. T wave

91. During QRS complex
92. Tunica intima, tunica media, tunica externa
93. Tunica intima - squamous endothelium, Tunica media - smooth muscle and elastic fibres, Tunica externa - fibrous connective tissue with collagen fibres
94. Tunica media
95. Pulmonary and systemic circulation
96. Intestine to liver

### • REGULATION & DISORDERS

97. Myogenic
98. Medulla oblongata
99. F
100. Heart disease, kidney and brain
101. 140/90
102. F
103. T
104. CAD, Deposition of - calcium, fat, cholesterol and fibrous tissues
105. not enough oxygen is reaching the heart muscle
106. When heart is not pumping enough blood to meet the requirements of the body
107. Lungs
108. when the heart stops beating
109. when the heart muscle is suddenly damaged by an inadequate blood supply

### • DigaQs

DigaQ. 1 - Formed elements in blood

- A - RBC
- B - Platelets
- C - Eosinophil
- D - Basophil
- E - Neutrophil
- F - Monocyte
- G - T lymphocyte
- H - B lymphocyte



*DigaQ. 2 - Section of a human heart*

*A - Aorta*

*B - Pulmonary artery*

*C - Pulmonary veins*

*D - Left atrium*

*E - Bundle of His*

*F - Left ventricle*

*G - Interventricular septum*

*H - Apex*

*I - Right ventricle*

*J - Chordae tendinae*

*K - AV node*

*L - Right atrium*

*M - SA node*

*N - Vena cava*

*DigaQ. 3 - Conducting system of heart*

*A - SA node*

*B - AV node*

*C - AV bundle*

*D - Left bundle branch*

*E - Purkunje fibres*

*F - Right bundle branch*

*DigaQ. 4 - Events of cardiac cycle*

*A - Atrial systole*

*B - Ventricular systole*

*C - Atrial diastole*

*D - Ventricular diastole*

*DigaQ. 5 - Standard ECG*

*i - P, ii - Q, iii - R, iv - S, v - T*

*DigaQ. 6 - Blood circulation in humans*

*A - Lungs*

*B - Pulmonary vein*

*C - Dorsal aorta*

*D - Body parts*

*E - Vena cava*

*F - Pulmonary artery*

*DigaQ. 7 - Blood vessels*

*X - Vein*

*A - Smooth muscle*

*B - Lumen*

*Y - Artery*

*A - Smooth muscle*

*B - Lumen*

*Z - Capillary*



SCAN AND DONATE US SO THAT WE  
CAN CREATE MORE SUCH QUALITY  
CONTENT FOR YOU!

JUST ₹10-20 WILL BE APPRECIABLE! :)



**India is my country.  
All Indians are my  
Brothers & Sisters**



**India is my country.  
All Indians are my Brother  
and Sisters except  
Riya of 11 'A'  
Ayushi of 11 'C'  
& Anushka mam**



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